

IN THE ABSTRACT

A composite material is provided, which has a low thermal expansivity, a high thermal conductivity, and a good plastic workability, which composite material may be applied to semiconductor devices and many other uses. The composite material is composed of metal and inorganic particles having a smaller coefficient of thermal expansion than the metal. It is characterized in that the inorganic particles are dispersed in such a way that 95% or more of them (in terms of their area in cross-section) form aggregates of complex configuration joined together. The composite material contains 20-80 vol% of copper oxide, with the remainder being copper. It has a coefficient of thermal expansion of 5×10^{-6} to $14 \times 10^{-6}/^{\circ}\text{C}$ and thermal conductivity of 30-325 W/m • K in the range of room temperature to 300° C. It is suitable for the radiator plate of semiconductor devices and the dielectric plate of electrostatic attractors.

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